

148 FERC ¶ 61,005
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Cheryl A. LaFleur, Acting Chairman;
Philip D. Moeller, John R. Norris,
and Tony Clark.

Midcontinent Independent
System Operator, Inc.

Docket Nos. ER13-2295-002
ER13-2295-003

ORDER ON REHEARING AND COMPLIANCE FILING

(Issued July 2, 2014)

1. On November 15, 2013, the Commission conditionally accepted Midcontinent Independent System Operator, Inc.'s (MISO) proposed revisions to its Open Access Transmission, Energy, and Operating Reserve Markets Tariff (Tariff), which added Schedule 28A to modify MISO's pricing of transmission constraints that cannot be managed under the Security Constrained Economic Dispatch (SCED)¹ process.² On December 13, 2013, MISO's Independent Market Monitor (Market Monitor) filed a request for rehearing of the November 15 Order, and MISO submitted its filing to comply with the November 15 Order. As further discussed below, we deny the Market Monitor's request for rehearing and accept MISO's December 13, 2013 compliance filing.

I. Background

2. In the November 15 Order, the Commission conditionally accepted Schedule 28A to MISO's Tariff, as proposed in MISO's August 30, 2013 filing in Docket No. ER13-2295-000 (August 30 Filing), and made Schedule 28A effective November 1, 2013. Schedule 28A implements two groups of Transmission Constraint Demand Curves

¹ MISO defines SCED as "[a]n algorithm capable of clearing, dispatching, and pricing Energy and Operating Reserve in a simultaneously co-optimized basis that minimizes Production Costs and Operating Reserve Costs while enforcing multiple security constraints." See MISO, FERC Electric Tariff, Module A, § 1.S, Definitions - S (30.0.0).

² *Midcontinent Indep. Sys. Operator, Inc.*, 145 FERC ¶ 61,128 (2013) (November 15 Order).

(TCDCs) in the SCED dispatch algorithm to improve the efficiency of transmission constraint pricing when projected flows exceed transmission limits. The TCDCs use a maximum shadow price for a constraint, known as its marginal value limit (MVL).³ The TCDCs price transmission constraints based on type of constraint (i.e., Interconnection Reliability Operating Limit (IROL) or System Operating Limit (SOL)),⁴ transmission voltage, and percent exceedance of the binding limit on the line. In its August 30 Filing, MISO stated that most constraints will be subject to the Group 1 TCDC, which represents constraints that are less frequently bound. MISO also stated that the Group 2 TCDC, which contains higher MVLs for the same voltage and exceedance levels (as compared to the Group 1 TCDC), would apply to “constraints that persistently cannot be managed using Group 1 TCDCs.”⁵ Schedule 28A also includes a separate Group 1 TCDC for external constraints associated with a Transmission Line Loading Relief (TLR) event.⁶ For exceedances of 10 MW or greater, the external TLR MVL is \$2,000/MWh, and for exceedances between 0 and 10 MW, the external TLR MVL is \$1,000/MWh.⁷

³ August 30 Filing, Transmittal Letter at 2. The shadow price reflects the incremental cost of redispatching resources to relieve a constraint. MISO stated that the MVL is the maximum amount that the market is willing to spend to manage the constraint.

⁴ The North American Electric Reliability Corporation (NERC) defines IROL as “[a] System Operating Limit that, if violated, could lead to instability, uncontrolled separation, or Cascading outages that adversely impact the reliability of the Bulk Electric System.” NERC defines SOL as “[t]he value (such as MW, MVar, Amperes, Frequency or Volts) that satisfies the most limiting of the prescribed operating criteria for a specified system configuration to ensure operation within acceptable reliability criteria.” See NERC Glossary of Terms Used in Reliability Standards at 26, 48.

⁵ August 30 Filing, Transmittal Letter at 6.

⁶ MISO follows the TLR procedures outlined in the NERC reliability standards IRO-006-5 – Reliability Coordination – Transmission Loading Relief and IRO-006-East-1 – Transmission Loading Relief Procedure for the Eastern Interconnection. These standards require coordinated action in interconnection-wide congestion management procedures across interconnection boundaries and also require Reliability Coordinators in the Eastern Interconnection to take actions related to TLR events that are intended to prevent or mitigate SOL and IROL violations.

⁷ August 30 Filing, Transmittal Letter at 5. In its answer to comments on the August 30 Filing, MISO stated that its practice when receiving a relief obligation on an

3. MISO proposed Tariff language under Schedule 28A that provided some criteria to be used in determining when a constraint should be moved from a Group 1 TCDC to a Group 2 TCDC.⁸ MISO's proposed language stated that MISO will remove the constraint from Group 2 when it deems that a constraint no longer satisfies the Group 2 criteria, and that "changes to the set of constraints managed by Group 2 TCDCs shall be publicly posted" by MISO.⁹ The proposed language further gave MISO the authority to implement a temporary override of the Group 1 TCDC or Group 2 TCDC applicable to a constraint when "the flow over a constraint is greater than or is expected to be greater than the constraint's binding limit for more than two intervals or raises an elevated reliability concern."¹⁰ During an override, the Tariff language stated that the shadow price associated with a constraint would be determined by MISO. Proposed Schedule 28A required MISO to return a constraint to its applicable TCDC as soon as it "determines that the system conditions and congestion management needs no longer require the adjustment" and that "overridden binding constraints will be publicly posted" by MISO.¹¹

4. In the November 15 Order, the Commission found MISO's proposal to be just and reasonable, as it increases transparency, allows MISO to more accurately manage varying degrees of congestion on its system, and prices transmission constraints according to their relative effect on reliability. In addition, the Commission found that MISO's proposal achieves MISO's stated goals in designing the TCDCs; namely, the desired reduction in price spikes while avoiding a large increase in constraint exceedances or a significant adverse effect on reliability. The Commission noted that MISO included testimony

external constraint during a TLR prior to the August 30 Filing was to apply its default internal MVL of \$2,000/MWh. MISO Answer at 10.

⁸ MISO, FERC Electric Tariff, SCHEDULE 28A, § 3.2 (1.0.0). These criteria include: the constraint is frequently violated for more than two consecutive intervals because it cannot routinely be managed under the Group 1 TCDC, the constraint is not subject to operating guides or other actions to manage flows that are available to other constraints in the same voltage class, and the operators believe the reliability consequences of allowing the flow to exceed the limit on the constraint are more severe than for other constraints in the voltage class.

⁹ *Id.*

¹⁰ *Id.* § 3.3.

¹¹ *Id.*

explaining that MISO tested the reliability effects of TCDCs using data from 2012, and that the proposed TCDCs had no detrimental impact on reliability while achieving on average more than a 10 percent reduction in shadow prices compared to the current MVLs.¹² The Commission pointed to MISO's determination that the proposal would add only a small number of new exceedances into the market (less than a five percent increase).¹³

5. In accepting MISO's Tariff revisions, the Commission agreed with MISO's approach of applying the same MVLs to external TLR constraints as if they were internal constraints on facilities rated greater than or equal to 161 kV, because the two external and internal classes of facilities were comparable. The Commission further found reasonable MISO's argument that, were it to reduce its MVLs to \$500/MWh for external TLR constraints as suggested by the Market Monitor in its protest of the August 30 Filing, it would increase constraint exceedances by 8.7 percent on facilities rated greater than or equal to 161 kV, which would violate MISO's stated criterion of allowing the MVLs in the TCDC to raise new exceedances no more than five percent. The Commission did not agree with the Market Monitor that MISO should alter its proposed MVL for external TLR constraints consistent with pricing of constraint exceedances in Southwest Power Pool (SPP), because MISO's MVLs will apply to all TLR events that may occur across multiple seams between MISO and neighboring Transmission Providers in which there is not a market-based congestion management agreement in effect (and not just the seam between SPP and MISO). However, the Commission encouraged MISO to continue working with the Market Monitor and MISO's stakeholders to reduce any market inefficiencies that may exist within the MISO region or between MISO and neighboring Transmission Providers.

6. The Commission directed MISO to submit a compliance filing with additional Tariff language to clarify the information that will be submitted in its public postings associated with Group 2 TCDCs and overrides of the MVLs. The Commission stated that the MISO Tariff language must be revised to specify that MISO will publicly post all constraints managed by the Group 2 TCDC, explaining the reasons for applying the Group 2 TCDC and the duration of time before the constraints were removed from Group 2. With respect to temporary overrides, the Commission required MISO's Tariff language to provide that MISO's public postings will: (1) explain the circumstances in which temporary override authority was exercised; (2) describe the length of time each temporary override was in place; and (3) state the MVL applied during the temporary

¹² November 15 Order, 145 FERC ¶ 61,128 at P 20.

¹³ *Id.* (citing MISO August 30 Filing, Testimony of Joseph Gardner at 8).

override in place of the default TCDC MVL. The Commission also directed MISO to retain these postings on its OASIS Notices Archives site, consistent with its current archival practices for OASIS postings.

II. Request for Rehearing

A. The Market Monitor's Request for Rehearing

7. The Market Monitor requests that the Commission grant rehearing of the findings in the November 15 Order related to the TCDC that will be applied to external TLR constraints. The Market Monitor first argues that the Commission erred in agreeing with MISO and finding that exceedances on external TLR constraints should be priced comparably to exceedances on MISO's internal constraints because the Market Monitor believes the two types of exceedances are not comparable.¹⁴ The Market Monitor argues that the relevant question in determining if an external TLR constraint should have the same value as an internal constraint is not the type of facility, but the reliability implications of the exceedance. The Market Monitor argues that the reliability implications are not comparable between internal and external TLR constraints. The Market Monitor states that an exceedance on an internal constraint indicates that MISO's Real-Time Market is unable to dispatch its resources, at a marginal cost below the TCDC, to reduce the flows over a constraint to less than the constraint's limit. The Market Monitor states that an exceedance on an internal constraint can have substantial reliability effects and justifies high locational marginal prices. The Market Monitor states that, in contrast, an exceedance on a TLR constraint external to MISO indicates that MISO's Real-Time Market cannot provide the full amount of requested relief in the next five minutes. The Market Monitor argues that failure to provide the full requested relief will not cause the constraint in the neighboring area to exceed its limit, and in fact, the external constraint may not bind at all, even though MISO is pricing the constraint at \$1,000 to \$2,000/MWh.

8. The Market Monitor illustrates with an example that assumes the neighboring regional transmission organization (RTO) has a five percent probability of experiencing a constraint exceedance when MISO does not provide the full relief requested, and also assumes that the neighboring RTO prices the violation at \$2,000/MWh.¹⁵ In that case, the Market Monitor argues that the expected value of MISO's external TLR exceedance is only \$100/MWh, and that this amount is the highest reliability value that could reasonably be applied to the relief. The Market Monitor argues that MISO's MVLs of

¹⁴ Market Monitor Rehearing Request at 3-4.

¹⁵ *Id.* at 4.

\$1,000 to \$2,000/MWh for external TLR constraints are likely an order of magnitude higher than the expected value of exceedances in neighboring areas, and therefore it is inappropriate to use the same TCDC value for external TLR constraints and internal constraints.

9. The Market Monitor next argues that the Commission erred in relying on MISO's analysis of exceedances in determining that the TCDC proposed for external TLR constraints is reasonable.¹⁶ The Market Monitor states that in MISO's answer to its protest, MISO conducted a study showing that the Market Monitor's proposed MVL of \$500/MWh for external TLR constraints would fail the stated goal of creating less than or equal to five percent new exceedances when implementing the new TCDC values. Using data from March 1 to May 31, 2013, MISO concluded that the Market Monitor's suggested MVL for external TLR constraints would increase constraint exceedances on transmission facilities of more than 161 kV by 8.7 percent. However, the Market Monitor notes that it studied the data for all of 2012 and 2013, in contrast to the three-month period of MISO's study, and found that lowering the TCDC to \$500/MWh for external TLR constraints would have increased such external TLR exceedances during this more representative time period by 3.3 percent. The Market Monitor notes that this number is well under the five percent threshold established by MISO.¹⁷

10. The Market Monitor also argues that the Commission erred in approving MVLs for external TLR constraints that are substantially higher than those that other RTOs place on these TLR constraints.¹⁸ The Market Monitor explains that its analysis focuses on SPP because the majority of TLR constraints acted on by MISO are for TLRs called by SPP; specifically, 86 percent of the TLR constraints over the past two years are related to SPP. Therefore, the Market Monitor argues that it is useful to understand the values that SPP has established for its constraint violations, which range from \$500/MWh for

¹⁶ *Id.* at 5-7.

¹⁷ The Market Monitor also states that it analyzed the data over the three-month period between March 1 and May 31, 2013 and found that the increase in such exceedances from current MVLs would be only 8.1 percent.

¹⁸ Market Monitor Rehearing Request at 7-8.

small violations to \$1,500/MWh for large violations.¹⁹ The Market Monitor contends that the TLR relief shortfalls that MISO intends to price at \$1,000/MWh to \$2,000/MWh will rarely produce transmission violations on SPP or other systems. The Market Monitor states that a \$500/MWh MVL for external TLR constraints is more than sufficient, given that SPP and other neighboring RTOs will rarely be experiencing constraint violations during the small share of TLR constraints where MISO incurs a relief shortfall. In addition, the Market Monitor states that even if these shortfalls did contribute to a violation of a constraint in SPP, it is unreasonable for MISO to price these relief shortfalls at a significantly higher value than would SPP.

11. Finally, the Market Monitor contends that the Commission erred in ignoring the inefficiencies that will be caused by MISO's proposed application of the MVLs for external TLR constraints. The Market Monitor repeated its previous argument that the MVLs proposed by MISO to manage an external TLR constraint are many times higher than the cost that would be incurred by the monitoring RTO/ISO (i.e., the RTO/ISO in which the constraint is occurring) to manage the constraint. The Market Monitor additionally noted that other RTOs, such as New York Independent System Operator and ISO New England, do not provide redispatch relief when TLRs are called, and stated that this approach would be preferable to the inefficient redispatch and congestion costs MISO is currently incurring with its MVLs for external TLR constraints.

B. Commission Determination

12. The request for rehearing is denied. We uphold the November 15 Order's finding that MISO's TCDCs as revised therein, including the MVLs for external TLR constraints, are just and reasonable, as they increase transparency, allow MISO to more accurately manage varying degrees of congestion on its system, and price transmission constraints according to their relative effect on reliability, which allows MISO to reduce price spikes while avoiding a large increase in constraint exceedances or a significant adverse effect on reliability.²⁰ With regard to MISO's MVLs for external TLR constraints, we agree with the Market Monitor that pricing the same constraint differently between two RTOs

¹⁹ SPP applies the following Violation Relaxation Limit values: (1) \$500/MWh for constraint violations from 100 to 101 percent of the limit; (2) \$750/MWh for constraint violations from 101 to 102 percent of the limit; (3) \$1,000/MWh for constraint violations from 102 to 103 percent of the limit; (4) \$1,250/MWh for constraint violations from 103 to 104 percent of the limit; and (5) \$1,500/MWh for constraint violations of 104 percent and above. *See* SPP, OATT, Attachment AE (MPL), Addendum 1 (0.0.0).

²⁰ November 15 Order, 145 FERC ¶ 61,128 at P 20.

will lead to inefficient market results in some circumstances; however, we are concerned about the potential reliability effects of lowering the MVLs for external TLR constraints based on the record before us. As discussed below, we encourage MISO to work with the Market Monitor and stakeholders to reduce any market inefficiencies that may exist between MISO and neighboring Transmission Providers.

13. With regard to the Market Monitor's argument that external TLR constraints are priced too high, we find that MISO's MVLs for external TLR constraints allow MISO to appropriately comply with its reliability obligations. MISO's Real-Time Market utilizes SCED to (1) prevent potential internal transmission limit exceedances if a contingency occurs and (2) to mitigate actual transmission limit exceedances when a contingency occurs. We note that the same concept applies to external TLR constraints. First, a Reliability Coordinator initiates a TLR to mitigate potential or actual SOL and IROL exceedances.²¹ Therefore, a TLR would not be initiated without a potential or actual exceedance. Second, each Reliability Coordinator that receives a request from a Reliability Coordinator initiating a TLR *must* implement the congestion management actions requested by the issuing Reliability Coordinator, including instructing its Balancing Authorities to curtail Interchange Transactions, Network/Native Load and Market Flow.²² Therefore, failure to comply with the requirement to provide the full amount of requested relief during a TLR would result in violation of Reliability Standard IRO-006-East-1. Because MISO has a reliability obligation to manage external constraints just as it does for internal constraints, we find it reasonable for MISO to treat each type of exceedance with equal consideration and we find that MISO may treat external TLR constraints comparably to MISO's internal constraints on facilities rated greater than or equal to 161 kV.

14. The Market Monitor also argues that the Commission erred in relying on MISO's analysis of exceedances in determining that the TCDC proposed for external TLR constraints is reasonable. We, however, agree with MISO's argument that an MVL of \$500/MWh for external TLR constraints, as suggested by the Market Monitor, would not meet the analytic criteria that MISO relied upon to establish the TCDC, and that the Commission accepted in the November 15 Order. In its August 30 Filing, MISO stated that the TCDC was designed with three criteria in mind, one of which was a target of less than a five percent increase in new constraint exceedances as a result of TCDC

²¹ See NERC Reliability Standard IRO-006-EAST-1 (Transmission Loading Relief Procedure for the Eastern Interconnection).

²² *Id.*

implementation.²³ The Market Monitor argues that its suggested TCDC value of \$500/MWh for exceedances of external TLR constraints would only increase external TLR constraint exceedances by 3.3 percent on average from January 2012 to August 2013. However, it is undisputed that the \$500/MWh value would increase the number of external TLR constraint exceedances to over eight percent between March 1 and May 31, 2013.²⁴ Although MISO's evidence relied upon data from the three months with the highest observed increase in external TLR constraint exceedances, MISO's stated criterion did not include a time frame for the five percent target ratio. MISO merely stated that, in order to ensure that there is not a large increase in unmanageable constraints, the percentage of new constraint exceedances should not be over five percent. We find it reasonable for MISO to determine that an increase of exceedances of external TLR constraints over five percent during a three-month time period is enough to violate the stated criterion.

15. The Market Monitor further argues that the Commission erred in approving MVLs for external TLR constraints that are substantially higher than those that other RTOs place on these TLR constraints. As an initial matter, we note that MISO's MVL of \$1,000 that would be applied to external TLR exceedances between 0 and 10 MW reduces the MVL from the level previously applicable during all such TLR events, which as the Commission noted in the November 15 Order, is in keeping with MISO's stated goal of addressing smaller exceedances more appropriately so as to reduce price spikes.²⁵ MISO's previous practice when receiving a relief obligation on a TLR constraint was to apply its default internal MVL of \$2,000/MWh to all external TLR exceedances.²⁶ We are not persuaded that an MVL of \$500/MWh for external TLR constraints, which is the SPP shadow price for small constraint violations, is a just and reasonable alternative to the MVLs in MISO's TCDC, especially considering that the values that SPP applies can be significantly higher than the \$500/MWh MVL suggested by the Market Monitor.²⁷

²³ The other two criteria were: (1) a target of less than or equal to a two percent maximum exceedance percentage increase; and (2) a target of greater than or equal to 10 percent reduction in shadow price during exceedance.

²⁴ In its answer to comments on the August 30 Filing, MISO reported an 8.7 percent increase, while the IMM contends that the increase is in fact only 8.1 percent.

²⁵ November 15 Order, 145 FERC ¶ 61,128 at P 21.

²⁶ Currently, an MVL of \$2,000/MWh will only be applied to exceedances of 10 MW or greater.

²⁷ SPP's values are also calculated based on percent exceedance of the binding limit on the line, whereas MISO's MVLs for external TLR constraints are based on MW

16. We also agree with MISO's argument that its MVLs for external TLR constraints reflect the footprint's fleet costs and that an MVL for external TLR constraints that is too low could have a negative impact on reliability. The MVL must establish a price signal that adequately reflects MISO's value of generation that can be redispatched to relieve congestion across a constraint. If MISO's MVL for external TLR constraints is inadequate to encourage MISO generators to relieve an external constraint, MISO may need to manually redispatch generators to relieve the constraint.²⁸ Manual Redispatch is less accurate than market-based constraint relief; therefore, it is more likely that the flows over the constrained flowgate (or other transmission equipment) would exceed the binding limit. Furthermore, when generation is manually redispatched, it results in a shadow price of zero, and therefore its value is not reflected in the market price, making for a less efficient result. Load within MISO may therefore incur costs resulting from such measures that are higher than would otherwise have occurred under the proposed MVL for external TLR constraints.

17. Last, the Market Monitor argues that the Commission erred in ignoring the inefficiencies that will be caused by MISO's proposed application of the MVLs for external TLR constraints. As noted above, we agree with the Market Monitor that pricing the same constraint differently between two RTOs will lead to inefficient market results in certain circumstances. This is a major premise behind the use of the market-to-market processes in joint operating agreements. A market-to-market process between MISO and SPP is expected to be in operation in March 2015 as part of the extension of the joint operating agreement between the two entities (Joint Operating Agreement), and the process will involve MISO and SPP designing procedures to manage transmission

exceedance of the binding limit on the line. SPP's values range between \$500/MWh (for constraint violations from 100 to 101 percent of the limit) and \$1,500/MWh (for violations of 104 percent and above), while MISO's TCDC during TLR events is \$1,000/MWh for exceedances between 0 and 10 MW and \$2,000/MWh for exceedances of 10 MW or greater.

²⁸ Manual Redispatch is defined as the Transmission Provider's issuance of dispatch targets created other than through the automated SCED computer software. *See* MISO, FERC Electric Tariff, Module A, § 1.M, Definitions - M (30.0.0).

constraints on certain reciprocal coordinated flowgates.²⁹ To the extent that the Joint Operating Agreement incorporates SPP flowgates that are currently subject to TLR events as part of the market-to-market process, the inefficiencies noted by the Market Monitor will be largely resolved. As this market-to-market process has not yet been completed, we strongly encourage MISO to evaluate the TCDC applicable to TLR events based on operational data as it becomes available, and continue working with the Market Monitor and its stakeholders to reduce any market inefficiencies that may exist within the MISO region or between MISO and neighboring Transmission Providers. We also encourage the Market Monitor to continue its diligence in identifying potential market flaws and working with MISO to resolve issues as they arise.

III. Compliance Filing

18. On December 13, 2013, MISO submitted its filing to comply with the November 15 Order. MISO submitted proposed revisions to section 3.2 and 3.2 of Schedule 28A. MISO revised section 3.2 to include language stating that it will publicly post: (1) all constraints managed by the Group 2 TCDC; (2) the reason for applying the Group 2 TCDC to each of these constraints; and (3) the length of time that the Group 2 TCDC has been applied to each of the constraints.³⁰ MISO submitted a revised Section 3.3 of Schedule 28A to include language stating that, when MISO temporarily overrides the Group 1 or Group 2 TCDC applicable to a constraint, the public posting will: (1) provide the reason for which temporary override was exercised; (2) describe the length of time each temporary override was in place; and (3) state the MVL applied during the temporary override in place of the default TCDC MVL.³¹ MISO requests an effective date of November 1, 2013 for the revisions to Schedule 28A. MISO included Tariff language revising both sections to include language stating that these public postings will be accessed via its OASIS Notice Archives site.

²⁹ See Southwest Power Pool, Inc., Amendment to Joint Operating Agreement to Implement Market-to-Market Procedures, pending in Docket No. ER13-1864-000, at 5 (filed June 28, 2013). The amendment defines a reciprocated coordinated flowgate as “a Flowgate that is subject to reciprocal coordination by Operating Entities, under either this Agreement (with respect to Parties only) or a Reciprocal Coordination Agreement between one or more Parties and one or more Third Party Operating Entities.”

³⁰ MISO, FERC Electric Tariff, SCHEDULE 28A, Demand Curves for Transmission Constraints § 3.2 (31.0.0).

³¹ MISO, FERC Electric Tariff, SCHEDULE 28A, Temporary Overrides § 3.3 (31.0.0).

19. Notice of MISO's compliance filing was published in the Federal Register, 78 Fed. Reg. 77,669 (2013), with interventions or protests due on or before January 3, 2014. No comments or protests were filed.

20. We find that MISO has complied with the Commission's directives in the November 15 Order, and we will accept MISO's compliance filing, effective November 1, 2013, as requested.

The Commission orders:

(A) The Market Monitor's request for rehearing of the November 15 Order is hereby denied, as discussed in the body of this order.

(B) MISO's December 13, 2013 compliance filing is hereby accepted, effective November 1, 2013, as discussed in the body of this order.

By the Commission.

(S E A L)

Nathaniel J. Davis, Sr.,
Deputy Secretary.